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McGUIRE WOODS LLP
1750 TYSONS BOULEVARD
SUITE 1800
McLEAN, VA 22102

EXAMINER

LIU, MING HUN

ART UNIT	PAPER NUMBER
2675	

DATE MAILED: 02/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/886,028

Applicant(s)

PARK, JIN-HO

Examiner

Ming-Hun Liu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 and 5 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of US Patent 6,498,596 to Nakamura et al and US Patent 5,283,477 to Shibata.

In reference to claims 1 and 3, Nakamura teaches a column driving unit that converts the digital gamma data into an analog gradation voltage, where the final column signal is based on the control signal, the RGB data and the analog gradation voltage (figures 49B, 49D and 50; column 36, lines 19-24 and lines 35-39). It can be seen from figure 49D that latches (24) are used to store the digital gamma data. Next, decoder 80 is included in Nakamura's driving circuit. A first D/A converter is detailed in figure 50, which is included in Nakamura's decoding circuit. A shift register (item 21a, figure 44) is used to shift the output (column 34, line 22) into the data latch (24a) where the two are controlled by the clock from the controller. By referring to figure 29D it can be seen that the second DAC (item 10C) receives the analog gradation from (item 80) and the data from latches (24) and generating the gradation voltage based on the selecting gradation value (column 36, lines 45-54). Finally, item 50M is the buffer amplifier.

Nakamura however does not elaborate much on the other LCD panel components necessary for the proper functionality of the LCD display.

As shown by Shibata, power circuits and controlling circuits are required for the proper functioning of LCD displays. From figure 1 of Shibata, it can be seen that the controller (item 38) receives the video signals and the control synchronous and clock signals. Furthermore the controller generates the gate signals, the column control signals, RGB signals and the gamma correction signal.

It would have been obvious to one skilled in the art to include the components disclosed by Shibata since these components are necessary, if not inherent to the ensuring the functionality of the LCD display. Shibata merely elaborates on LCD components where Nakamura is silent on.

In reference to claim 2, it can be seen from figure 50 that the RGB data and the digital gamma data are transmitted through different transmission lines.

3. Claims 6-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of the applicant's own admission and further in view of Moon.

Much of claim 6 is rejected on the grounds presented in the rejection of claim 1. What Nakamura does not include in his invention was adopting a differential signaling method to his invention. On page 2 of the application, the applicant states that differential signaling techniques are well known in the art and are commonly used in reducing EMI problems a fact that Moon would also agree (column 2, lines 43-50).

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It would have been obvious to one skilled in the art to implement differential signaling techniques because the current invention uses several transmission lines with high-resolution data.

Claim 7 is rejected on grounds presented in claim 1 with the addition of Moon. In figures 3 and 4, Moon shows that naturally the controller would require a differential signal transmitting unit for the proper transfer of information.

Claim 8 is rejected on the grounds presented in claim 3 with the addition of Moon. In figures 3 and 5, Moon shows that naturally the driving circuit would require a differential signal receiving unit for the proper reception of information.

In reference to claims 9-15, the applicant on page 2 of the application admits that LVDS, RSDS and TMDS are commonly used differential techniques used by ones skilled in the art. It would have been obvious to implement these different techniques because of their availability.

Allowable Subject Matter

4. Claims 4 and 5 are allowed. The applicant has amended the claim to make invention patentably distinct from the prior art.

Response to Arguments

5. Applicant's arguments with respect to claims 1-3 and 6-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,445,323 to Cairns et al.: Refer to figures 1, 4 and 5.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ming-Hun Liu


DENNIS-DOON CHOW
PRIMARY EXAMINER